KENTUCKY ENERGY WATCH

Special Issue

A Weekly Update of Energy Prices and Supply **May 18, 2001**

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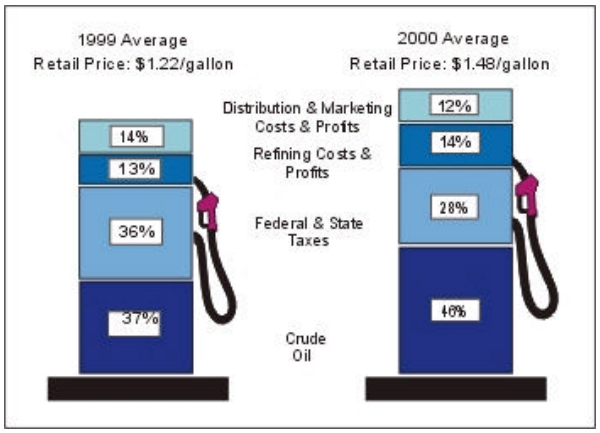
Welcome to this special issue of *KENTUCKY ENERGY WATCH* focusing on the causes of gasoline price volatility. This issue offers a look at the fundamentals of gasoline pricing, a perspective of the current situation regarding gasoline supply and demand, and fuel-saving tips that reduce gasoline costs.

Fundamentals of Gasoline Pricing

Gasoline, one of the main products refined from crude oil, accounts for about 17 percent of the energy consumed in the United States. While gasoline is produced year-round, extra volumes are made in time for the summer driving season. Gasoline is delivered from oil refineries mainly through pipelines to a massive distribution chain serving 176,000 retail gasoline stations throughout the United States. Each grade of gasoline (regular, midgrade, and premium) has a different octane level. Price levels vary by grade, but the price differential between grades is generally constant.

What are the components of the retail price of gasoline?

The cost to produce and deliver gasoline to consumers includes the cost of crude oil to refiners, refinery processing costs, marketing and distribution costs, and, finally, the retail station costs and taxes. The prices paid by consumers at the pump reflect these costs, as well as the profits (and sometimes losses) of refiners, marketers, distributors and retail station owners.



In 2000, when the price of crude oil averaged $28.36 per barrel, crude oil accounted for about 46 percent of the cost of a gallon of regular grade gasoline. In comparison, the average price for crude oil in 1999 was $17.46 per barrel, and it composed 37 percent of the cost of a gallon of regular gasoline. The share of the retail price of regular-grade gasoline that crude oil costs represent varies somewhat over time and among regions.

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Perspective on the Current Situation

In a replay of last year, we can expect to pay more at the gasoline pump this spring and summer. Unlike last year, we can't blame high prices solely on the actions of petroleum-exporting countries. Over the past few weeks, small fires slowed production at oil refineries in Illinois and California, and a problem at a Venezuelan refinery slowed gasoline imports to the United States. As a result of these disruptions, gasoline futures prices soared, and prices at gas stations across the nation jumped to an average of $1.70 a gallon for regular unleaded gasoline from $1.57 in mid-April. Gasoline futures prices fell as soon as the refineries started production again ("Gasoline prices fall as refineries are restarted," *The Wall Street Journal* via Dow Jones, 05/14/01).

Experts warn that consumers ought to be prepared for such price volatility in the coming months because of tight supplies and increased demand, which has risen about 2 percent so far this year. U.S. refining capacity is not able to keep up with an increase in demand for gasoline—a demand driven by a strong economy and the ever-growing number of larger vehicles. The trend toward sport-utility vehicles, pickup trucks and minivans (accounting for 43 percent of the vehicles on the road today, as opposed to 30 percent in 1990) is driving down the over all fuel efficiency in the United States.

The refining capacity is hampered by the number of different blends of fuel required in cities throughout the United States to meet federal clean air standards. The states have adopted more than a dozen different recipes for the gas, tailored to budget and availability of ingredients. With such variety in gasoline mixtures, states aren't able to swap and share when supplies are tight.

Although gasoline inventories have increased recently, they are still about 4 percent below year-ago levels, and they

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A Budget Scenario

As of May 15, 2001, the price of regular unleaded gasoline in Kentucky was 16.5 percent higher than the same time last year. That's an increase of 24.2 cents per gallon. Businesses and agencies that maintain vehicle fleets and whose employees travel extensively during the summer months will see this impact on their bottom line. For ideas on how to help control your fuel expenses this summer, please check out the fuel saving tips at the end of this special edition.

Federal, state and local taxes are a large component of the retail price of gasoline. Taxes (not including county and local taxes) account for approximately 28 percent of the cost of a gallon of gasoline. Within this national average, federal excise taxes are 18.4 cents per gallon and state excise taxes average 19.96 cents per gallon. Also, seven states levy additional state sales taxes, some of which are applied to the federal and state excise taxes. Additional local county and city taxes can have a significant impact on the price of gasoline.

Kentucky's excise tax for gasoline is 15 cents—add an underground storage tax of 1.4 cents for a total state tax of 16.4 cents. This, combined with the federal tax on gasoline, results in a total tax of 34.8 cents per gallon. This is the fifth lowest rate in the nation. Connecticut has the highest gasoline tax rate at 55.6 cents per gallon.

Refining costs and profits comprise about 14 percent of the retail price of gasoline. This component varies from region to region due to the different formulations required in different parts of the country.

Distribution, marketing and retail station costs and profits combined make up 12 percent of the cost of a gallon of gasoline. Approximately one-third of service station outlets today are company stations, i.e., are owned or leased by a major oil company and operated by its employees. The remainder are operated by independent dealers free to set their own prices.

The price on the pump reflects both the retailer's purchase cost for the product and the other costs of operating the service station. It also reflects local market conditions and factors, such as the desirability of the location and the marketing strategy of the owner.

Why Do Gasoline Prices Fluctuate?

Even when crude oil prices are stable, gasoline prices normally fluctuate due to factors such as season and local retail station competition. Additionally, gasoline prices can change rapidly due to crude oil supply disruptions stemming from world events or domestic problems, such as refinery or pipeline outages.

Seasonal demand for gasoline - When crude oil prices are stable, retail gasoline prices tend to gradually rise before and during the summer, when people drive more, and fall in the winter. U.S. summer gasoline demand averages about 6 percent higher than during the rest of the year.

Changes in the cost of crude oil - Events in crude oil markets were a major factor in all but one of the five run-ups in gasoline prices between 1992 and 1997. Crude oil prices are determined by worldwide supply and demand, with significant influence by the Organization of Petroleum Exporting Countries (OPEC).

OPEC tries to keep world oil prices at its target level by setting an upper production limit on its members. OPEC has the potential to influence oil prices worldwide because its members possess such a great portion of the world's oil supply, accounting for nearly 40 percent of the world's production of crude oil and holding about 67 percent of the world's estimated crude oil reserves.

Product supply/demand imbalances - A continuing economic boom in the United States has led to greater demand for gasoline. If demand rises quickly or supply declines unexpectedly due to refinery production problems or lagging imports, gasoline inventories (stocks) may decline rapidly. When stocks are low and falling, some wholesalers become concerned that supplies may not be adequate over the short term and bid higher for available product.

Gasoline may be less expensive in one summer when supplies are plentiful versus another summer when they are not. These are normal price fluctuations, experienced in all commodity markets. For example, the price of corn is higher than normal just before harvest time because corn inventories are depleted at that time. Prices may remain high after the harvest if a drought occurred during the growing season, thereby limiting the supply of corn. Prices may decline when a healthy crop is produced.

However, prices of basic energy (gasoline, electricity, natural gas, heating oil) are generally more volatile than prices

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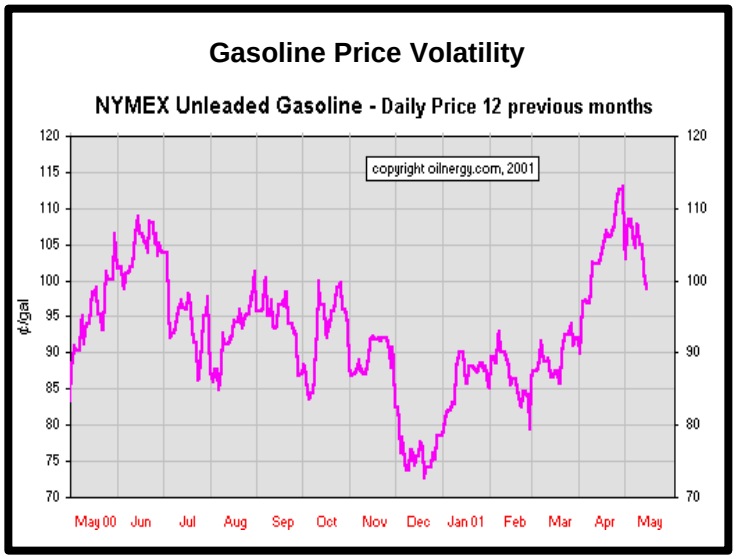
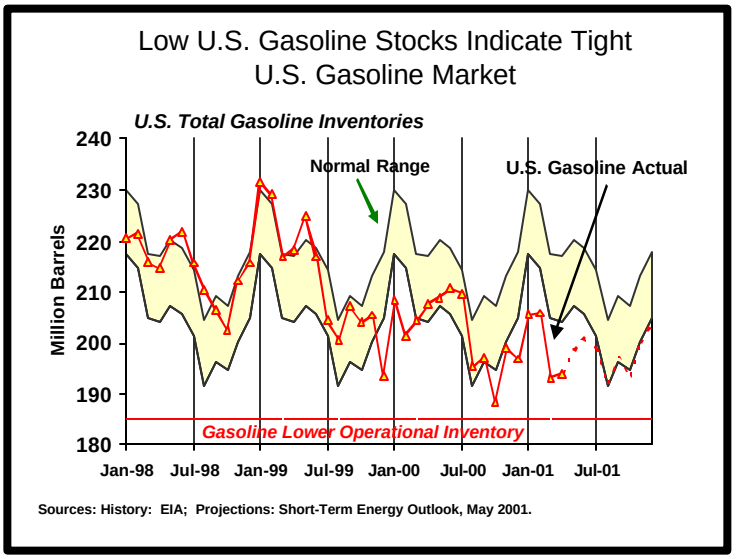




of other commodities. One reason is that consumers are limited in their ability to substitute between fuels when the price for gasoline fluctuates. So, while consumers can substitute readily between food products when relative prices shift, most do not have that option in fueling their cars.

Why do gasoline prices differ by region?

Although price levels vary over time, Energy Information Administration (EIA) data indicate that average retail gasoline prices tend to be typically higher in certain states or regions than in others. Aside from taxes, there are other factors that contribute to regional and even local differences in gasoline prices:

Proximity of supply - Areas farthest from the Gulf Coast (the source of nearly half of the gasoline produced in the U.S. and, thus, a major supplier to the rest of the country) tend to have higher prices. The proximity of refineries to crude oil supplies can even be a factor, as well as shipping costs (pipeline or waterborne) from refinery to market.

Supply disruptions - Any event that slows or stops production of gasoline for a short time, such as planned or unplanned refinery maintenance, can prompt bidding for available supplies. If the transportation system cannot support the flow of surplus supplies from one region to another, prices will remain comparatively high.

Competition in the local market - Competitive differences can be substantial between a locality with only one or a few gasoline suppliers versus one with a large number of competitors in close proximity. Consumers in remote locations may face a trade-off between higher local prices and the inconvenience of driving some distance to a lower-priced alternative.

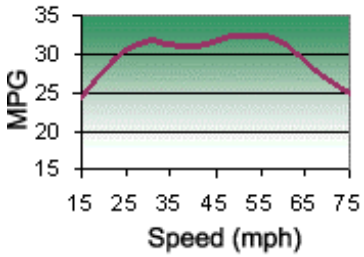
Environmental programs - About a third of the gasoline sold in the United States must meet EPA's Phase II reformulated specifications aimed at reducing carbon monoxide, smog and air toxics.

This gasoline must be in place at distribution terminals by May 1 and at retail outlets by June 1. During April, refineries and terminals are required to drain many of their tanks to prevent any commingling of winter grade gasoline and summer grade reformulated gasoline that meets more stringent environmental specifications. This transition affected the normal spring inventory build.

Furthermore, the logistical complexities of supplying gasoline with numerous specifications to select geographic markets has reduced flexibility, making it more difficult to quickly respond to unanticipated distribution problems. The use of RFG is mandated in Louisville and Northern Kentucky year-round.

Fuel Saving Tips

- **Have your car tuned regularly**. An engine tune-up can improve car fuel economy by an average of 1 mile per gallon.
- **Keep your tires properly inflated**. Under-inflated tires can decrease fuel economy by up to 1 mile per gallon.
- **Slow down**. The faster you drive, the more gasoline your car uses. Driving at 65 miles per hour rather than 55 miles per hour reduces fuel economy by about 2 miles per gallon.



- **Avoid jackrabbit starts**. Abrupt starts require about twice as much gasoline as gradual starts.
- **Pace your driving**. Unnecessary speedups, slowdowns and stops can decrease fuel economy by up to 2 miles per gallon. Stay alert and drive steadily, not erratically. Use cruise control on highway trips to help you maintain a constant speed.
- **Use your air conditioner sparingly.** The use of air conditioning can reduce fuel economy by as much as 2 miles per gallon under certain speeds and operating conditions.
- **Avoid lengthy engine idling**. Turn your engine off when you are delayed for more than a couple of minutes.
- **Plan your trips carefully**. Combine short trips into one to do all your errands. Avoid traveling during rush hours, if possible, to reduce fuel-consumption patterns such as starting and stopping and numerous idling periods. Consider joining a car pool.
- **Anticipate traffic situations.** Avoid unnecessary braking and acceleration and improve your fuel economy by 5 to 10 percent.
- **Employers: Evaluate business travel needs.** Reconsider business trips. If possible, propose conference calls to replace travel when feasible. Encourage carpooling to meetings and events; telecommuting; flexible work schedules and ride-sharing programs for employees. For ridesharing information, call 502.564.RIDE

Gasoline Price Investigation

After a nine-month investigation into the causes of gasoline price increases in the Midwest during the spring and summer of 2000, the Federal Trade Commission (FTC) reported last month that there was no evidence of collusion or other anti-competitive conduct. The report identified several factors that contributed to gasoline price spikes and warned that the lack of U.S. refinery capacity threatens similar price spikes in the Midwest and elsewhere in the future. Last week, the FTC reported similar findings following a three-year investigation of marketing and distribution practices of the major oil refiners in the Western states.

New York's attorney general recently completed an analysis of higher gasoline prices in that state. The attorney general concluded that the price increases were brought on by market forces and there is no evidence of collusion ("Market forces, not collusion, spiked gas prices," Associated Press, New York, 05/13/01).

(Perspective continued)

still don't provide much of a cushion to meet summer demand. Following the Arab oil embargo in the 1970s, demand for gasoline dropped 12 percent from 1978 to 1982 before it started steadily rising. Refining capacity also grew, as small, inefficient refiners entered the business to take advantage of government entitlements for small refineries. Even for most of the 1990s, when profits for refiners averaged less than 4 percent, and many big oil companies were moving out of the refining business, domestic refining capacity exceeded demand.

However, refinery capacity has grown only 8 percent since 1995 as companies expanded and sought to improve existing plants. As a result, plants are trying harder to meet demand. Gasoline refineries are operating at more than 95 percent of capacity today, when only last year some sat idle. Capacity utilization across all U.S. industries in 2000 was 82 percent, according to federal statistics. Running at such high capacity leaves little room for unplanned disruptions. No new refineries have been built in 25 years, in part because of siting restrictions; yet they now produce more than twice as much gasoline as they did in 1983. With fewer and larger refineries, an accident or disruption will result in significant regional price volatility. ("Who can stop gas pains?" By William R. Moomaw, *The Boston Globe*, 05/13/01).

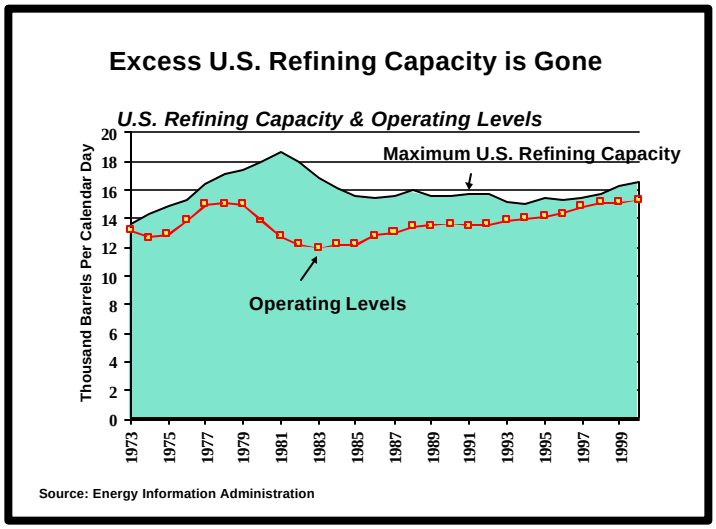
Refiners are worried that they won't be able to find new ways to expand, and a major new refinery -- which would be the first since 1976—is considered unlikely. A new refinery today is estimated to cost about $3 billion, and to take at least five years to build ("Government steps to clean air collide with love of fuel-guzzling SUVs--Regional recipes clog system," By Alexei Barrionuevo, *The Wall Street Journal*, 05/14/01).

Market Fundamentals Overview

- Refinery system runs near maximum during summer
- U.S. distribution system showing signs of strain -- local ramifications
- Increasing number of distinct types of gasoline
- Tight balance in global petroleum market
- Tight balance means low inventories
- Low inventories mean upward price pressure and potential for increased volatility

All of the above are contributing to prices this year.

Source: Energy Information Administration



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- *A Primer on Gasoline Prices*, DOE/EIA-X040-2-01; www.eia.doe.gov
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- Federal Trade Commission, File No. 981 0187, http://www.ftc.gov/opa/2001/05/westerngas.htm and *Final Report: Midwest Gasoline Price Investigation* (March 29, 2001), http://www.ftc.gov/opa/2001/03/midwest.htm

For more information, contact John Davies, Kentucky Division of Energy:
Phone: (502) 564-7192 or (800) 282-0868; Fax: (502) 564-7484
E-mail: John.Davies@mail.state.ky.us; Internet: http://www.kyenvironment.org/nrepc/dnr/energy/dnrdoe.html

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